

# Questions & Answers

## How to successfully implement Green Cooling: Sound strategies, qualified RAC workforce, best-available technology

Follow-up OEWG42 Side Event, 16 July 2020



On behalf of



Federal Ministry  
for Economic Cooperation  
and Development

Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety



# Recap: Agenda

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**Proklima – Naturally Cool!**

Janna Breitfeld, GIZ Proklima

**Benefits and components of RAC inventories & cooling strategies**

Christopher Jäger & Birgit Mayer, GIZ Proklima

**What is “Fit for Green Cooling”?**

Benefits of a sound scheme to qualify, certify and register RAC technicians as part of a successful cooling strategy

Lara Teutsch, GIZ Proklima

**R290 split AC as an example for best-available technology**

Philipp Munzinger, GIZ Proklima

**Questions and Answers**

All

**Closing**

Bernhard Siegele, GIZ Proklima

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# Topic: RAC inventories and cooling strategies



**“In practice, have many countries been able to establish inventories to high accuracy (i.e. without too many data gaps)? Are they already collecting all the data required, or is much effort needed to collect new/additional data?”**



Inventories for the RAC&F sector or covering related aspects exist in many countries worldwide. GIZ has supported countries to conduct greenhouse gas (GHG) inventories in Africa, Asia, Latin America and the Caribbean. The given answer concerns mainly activities and experiences made during the inventory activities made by GIZ.

Many countries collect and report on RAC&F data already. This mainly concerns reporting obligations within the annual reporting to the Montreal Protocol. This includes general consumption of refrigerants. Countries also establish GHG inventories to report to the UNFCCC. These national GHG inventories often do not include detailed data on the RAC&F sector. Hence, the RAC&F inventories established with support of GIZ are currently among the most comprehensive available datasets of GHG emissions on the sector for the respective countries. But there are always challenges in data collection and it is never a complete picture of the sector. Data collection requires substantial efforts to gather information from various sources and stakeholders. It often depends on the willingness to share information and availability of data. An institutionalised system to collect, store and analyse data would significantly simplify inventory and reporting processes. GIZ is currently developing a MRV system blueprint for the RAC&F sector which should support reporting on the sector as well as be interoperable with the UNFCCC reporting requirements on national GHG emissions.

# Topic: RAC inventories and cooling strategies



**“What strategy we can apply for a developing countries where presently price of AC's are normally 1/3 the price of AC using HC?”**



Split ACs using hydrocarbons as a refrigerant are currently more expensive than split ACs with HFC refrigerants as the global production scale and market share is still very limited. We expect that with demand by an increasing number of countries the scale will increase and sales prices will thereby decrease. Therefore it is important that countries declare their demand for efficient HC split ACs to split AC producers. GIZ Proklima helps countries to indicate demand for HC split ACs to relevant AC producers.

# Topic: RAC inventories and cooling strategies



**“I understand that both Vietnam and Indonesia have undergone specific RAC -GHG inventories. Given the opportunity that the K-CEP provides, how can a country who has not undergone a specific RAC GHG Inventory get assistance from GIZ Proklima to undergo a similar inventory process as done in Indonesia?”**



GIZ Proklima has supported both Vietnam and Indonesia in developing RAC&F GHG inventories. These activities are usually delivered within GIZ projects upon agreement with the respective national partner institution. We are happy to hear about the interest from Trinidad and Tobago and would kindly ask you to contact us for further exchange at [network@green-cooling-initiative.org](mailto:network@green-cooling-initiative.org).

## Topic: Qualification, certification and registration of RAC technicians



**“Interesting presentations. I understand GIZ is working in my country (Pakistan) for building capacity of training institutions. Wonder if that covers RAC& F sector as we would be interested to work in this area.”**



In Pakistan, the [‘Build4skills’ initiative by GIZ](#) advocates work-based training by highlighting the companies’ return of investment. Companies providing technical and vocational education and training (TVET) to trainees create a better perspective for locals but also benefit themselves. ‘Build4skills’ is being implemented in the scope of the Improved Workforce Readiness in Punjab Project, an ADB-funded TVET project of USD 100 million. However, the refrigeration, air conditioning and foam sector is not included yet.

GIZ Proklima sees great potential in including the RAC&F sector into national skill development strategies. We are currently in the process of developing a project on energy efficient domestic refrigerators in cooperation with NIDEC. The project will be implemented in Pakistan and Egypt and will also include measures to build capacity for technicians. Please contact us for further information: [Bernhard.Siegele@giz.de](mailto:Bernhard.Siegele@giz.de)

# Topic: R290 split air conditioners



**“Have R-290 domestic Air conditioners been introduced in the EU market?  
If this is so, % of it?”**



R290 split Air Conditioners have not yet been commercially introduced to the European market. The Chinese AC manufacturer Midea announced that they plan to introduce their R290 split AC models designed for the European market to the market in 2021.

# Topic: R290 split air conditioners



**“REASONS WHY THEY WERE NOT INTRODUCED?”**



The plan was to introduce them in 2020. According to Midea, the market introduction was postponed due to COVID-19.

# Topic: R290 split air conditioners



**“Under the HPMP provision for grant has been made. However a new legislation will be proclaimed in October to include AC in the list of appliance requiring EU certificates. With the intervention of GIZ the local representative of Godrej was able to get some R290 ac units for local sale. The issue is that AC from India do not have EU certification.”**



Godrej & Boyce is currently upgrading its production line and plans to get an EU certification for their new R290 split AC models in 2021.

# Topic: R290 split air conditioners



**“Hi I am Zainool from Guyana. What plans are in place to destroy the R22 gas that have been recovered? I am in the Caribbean Network.”**



GIZ Proklima is working with a couple of countries in developing business models for the destruction of R22. Please contact us bilaterally for further information: [network@green-cooling-initiative.org](mailto:network@green-cooling-initiative.org)

# Topic: R290 split air conditioners



**“As country we are very much willing to use R290 units...however the units operate at a different electrical cycle 50 hertz 220 as opposed to 120V 60hertz.....are there any units that can be used?”**



R290 inverter split AC systems can technically also be used for 60 Hz net frequency as most of them operate on a 50 –75 Hz range, but all models so far are unfortunately only meant to be used for 50 Hz net frequency. The volt level has to be assessed individually. GIZ Proklima is in constant contact with R290 split AC producers to assist in diversifying their assortment of products to meet different net frequencies and volt levels.

# Topic: R290 split air conditioners



**“What is the potential limit for charging equipment based on R-290?”**



Charge limits for AC systems using hydrocarbon refrigerants can be found in the AC product safety standard IEC 60335-2-40 and the EN-378. The maximum charge limit for direct expansion systems is 1 KG. Further, the charge limit is dependent on the room size in which the system operates.

# Contact

## Programme manager



**Bernhard Siegele**

bernhard.siegele@giz.de

## Communications



**Janna Breinfeld**

janna.breinfeld@giz.de



**Julia Schabel**

julia.schabel@giz.de

# Contact

## RAC inventories & cooling strategies



**Birgit Mayer**

birgit.mayer@giz.de



**Christopher Jäger**

christopher.jaeger@giz.de

## 'Fit for Green Cooling'



**Lara Teutsch**

lara.teutsch@giz.de

## Best available technology



**Philipp Munzinger**

philipp.munzinger@giz.de

# Dig deeper:

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 [www.green-cooling-initiative.org](http://www.green-cooling-initiative.org)

# Thank you!



**Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH**

Registered offices  
Bonn and Eschborn

Friedrich-Ebert-Allee 36 + 40  
53113 Bonn, Germany  
T +49 228 44 60 - 0  
F +49 228 44 60 - 17 66

Dag-Hammarskjöld-Weg 1 - 5  
65760 Eschborn, Germany  
T +49 61 96 79 - 0  
F +49 61 96 79 - 11 15

E [info@giz.de](mailto:info@giz.de)  
I [www.giz.de](http://www.giz.de)